REMARKS

I. Initial Remarks

Claims 23-48 are pending in this application. No claims are amended herein.

Applicant responds to the issues raised in the pending Office Action as follows.

II. Response to Claim Rejections

A. 35 U.S.C. § 112(2) Rejection of Claim 48

The Office rejects claim 48 under 35 U.S.C. § 112, second paragraph as being allegedly indefinite. *See* Office Action, page 2. Specifically, the Office alleges that phrase, "optical fibers being enclosed within the outer jacket and separated from the optical core" in claim 48 is unclear, and "fails to particularly point out and distinctly claim the subject matter which applicant regards as the invention." *Id.* Applicant respectfully disagrees.

In order to satisfy 35 U.S.C. § 112, second paragraph, "an applicant need only utilize claim terminology that is sufficiently clear as to apprise "one of ordinary skill in the art of its scope and, therefore, [serve] the notice function required by 35 U.S.C. § 112, second paragraph, by providing clear warning to others as to what constitutes infringement of the patent." MPEP § 2173.02 (citing *Solomon v. Kimberly-Clark Corp.*, 216 F.3d 1372, 1379 (Fed. Cir. 2000)). As written, the language of claim 48 reasonably apprises one of ordinary skill of its scope.

Specifically, one of ordinary skill would readily understand that the phrase "one or more gas leakage detector optical fibers being enclosed within the outer jacket and separated from the optical core" means that one or more leakage detector optical fibers are *enclosed within* (e.g., embedded within) the outer jacket and *separated from* (e.g.,

not in contact with) the optical core. This interpretation is consistent with the as-filed Figs. For example, as filed Fig. 1 (reproduced below) shows one embodiment of the claimed invention wherein outer jacket 13 *covers* optical core 16, and gas leakage detector fibers 15 are *enclosed within* outer jacket 13 and are *separate* from optical core 16.

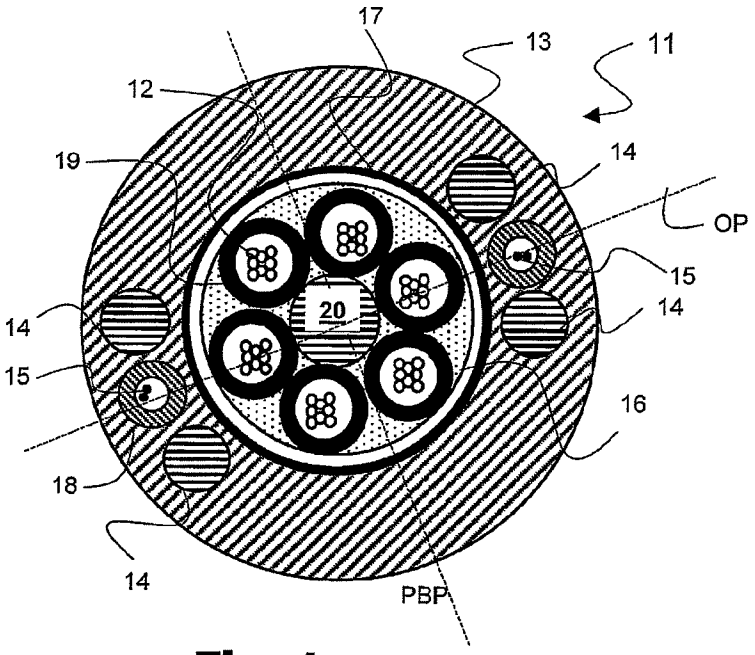

Fig. 1

See as-filed specification, page 13, lines 12-19 and Fig. 1. The inclusion of "separated from the optical core" reinforces the claim's requirement that the leakage detector optical fibers are enclosed within the outer jacket. There may or may not be a layer between the optical core and the outer jacket, such as metal barrier 17.

Nothing about the language of claim 48 leaves room for uncertainty. The 35 U.S.C. § 112, second paragraph rejection is therefore improper, and should be withdrawn.

B. 35 U.S.C. § 102(b) rejection of claim 23

According to the Office, European Patent No. EP 0 978 715 to Grosswig ("Grosswig 1")[1] anticipates claim 23 for the reasons set forth at pages 2 and 3 of the Office Action. In particular, the Office alleges that in Fig. 1 of Grosswig 1 "the bundles of optical fibers [(#'s 2 and 3)] comprise an 'optical core' surrounded by an outer jacket [(#'s 4, 5)] . . . ." Office Action at 3. Further, the Office states that "the disclosure [of Grosswig 1] describes leak detection techniques using the optical fiber to measure temperature variations" which identify gas leaks. *Id.*

Applicant respectfully disagrees, and traverses this rejection for at least the following reasons.

To establish anticipation under 35 U.S.C. §102(b), the Office must establish that a reference teaches, either expressly or inherently, each and every element of a claim. *See* M.P.E.P. § 2131 (citing *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987)). Further, a rejection under § 102 is proper **only** when the claimed subject matter is **identically** described or disclosed in the prior art. *See In re Arkley*, 455 F.2d 586, 587 (CCPA 1972) (emphasis added). The Office has failed to meet its burden in this case.

Grosswig 1 claims "a device for monitoring the state of pipes . . . or similar devices conveying gas or fluid media . . . comprising: at least one fibre-optic multi-mode light -wave conductor sensor cable . . . and at least one monomode light-wave conductor cable for news transmission wherein the cables form a sheathed composite arrangement . . . [and the cable] is installed predominantly in the interior of the pipes or

[1] For the Office's convenience, Applicant has obtained an machine translation of Grosswig 1. A copy of the machine translation accompanies this response.

pipe system . . . ." Original text of Grosswig 1, column 13, line 35 - column 14, line 1. The at least one multimode sensor cable is used to detect temperature differences along the length of a gas pipeline, which are attributable to leaking gas. *See id.* at ¶¶ [0069]-[0074].

However, Grosswig 1 does not disclose, *inter alia*, a "telecommunication fiber optic cable . . . comprising: an optical core comprising a number of telecommunication optical fibers; an outer jacket covering the optical core; and . . . ***one or more gas leakage detector optical fibers being enclosed within the outer jacket*[,]"** as recited in claim 23. Rather, as shown in FIG. 1 of Grosswig 1, monomode fiber bundles 2 and sensing multimode fiber bundle 3 are arranged within a metal strip 4, and metal strip 4 **is covered with a polyethylene coating 5** (equivalent to the claimed outer jacket). That is, Grosswig teaches a cable wherein an outer jacket (polyethylene coating 5) is radially external to (i.e., *covers*) both communication optical fibers (i.e., monomode fibers 2) *and* detector optical fibers (i.e., multi-mode light wave conductor sensor cable 3). It does not, however, disclose a telecommunication fiber optic cable wherein "one or more gas leakage detector optical fibers" are "*enclosed within*" an outer jacket, as recited in claim 23.

Applicant suspects the Office may be interpreting the phrase "detector optical fibers being enclosed within the outer jacket" as meaning that the detector optical fibers are *covered* by the outer jacket. This interpretation is not consistent with the claim language or the specification of the instant application. Applicant recognizes that during examination, the Office interprets, "the claims . . . as broadly as their terms reasonably allow," however, M.P.E.P. § 2111.01 explains that "[t[]his means that the words of the

claim must be given their plain meaning *unless the plain meaning is inconsistent with the specification*." Here, Applicant's specification clearly distinguishes the concepts of "enclosed within" and "covered." *See, e.g.,* as-filed specification, page 13, lines 12-19 and Fig. 1. (showing detector fibers 15 enclosed within outer jacket 13, and optical core 16 covered by outer jacket 13). For example, page 5, line 14 of the as-filed specification notes the preference that the detector optical fibers are "rather close to the outer jacket surface;" a condition not possible, if "enclosed within" meant "covered by." Furthermore, the terms "covering" and "enclosed within" are separately and distinctly used in claim 23, and may not be construed to mean the same thing.

For at least the foregoing reasons, Grosswig 1 does not teach or suggest all of the elements of claim 23. Applicant therefore submits that the Office's 35 U.S.C. § 102(b) rejection of claim 23 as being anticipated by Grosswig-1 is improper, and should be withdrawn.

C. 35 U.S.C. § 103(a) rejection of claims 23 and 48 in view of Grosswig 1 and Grosswig-NPL

The Office rejects claims 23 and 48 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Grosswig 1 in view of "Grosswig-NPL"[2], for the reasons stated on pages 3 and 4 of the Office Action. With respect to claim 23, the Office alleges that Since Grosswig and his co-authors and inventors worked for the same assignee, it would have been obvious to combine [the disclosure of both publications] . . . and to install leak detecting optical fibers in a telecom optical fiber bundle. Further, it would

[2] Grosswig et al., "Distributed Fibre Optical Temperature Sensing Technique - A Variable Tool For Monitoring Tasks," Proceedings of the 8th International Symposium on Temperature and Thermal Measurements in Industry and Science, pp. 9-17 (June 19-21, 2001).

have been obvious to enclose the leak detecting fibers within the outer jack of the optical fiber cable in order top [sic] protect the extremely fragile glass fibers from breakage." Office Action, pages 2-3. The Office takes a similar position with respect to claim 48, but adds that "it would have been obvious to one of ordinary skill in the to place some of the leak detecting fibers at various locations in the fiber bundles that would be separated by varying distances from the optical core." *Id.* at 3.

Applicant respectfully disagrees with and traverses the Office's position for at least the following reasons.

Several basic factual inquiries must be made in order to determine the obviousness or non-obviousness of claims under 35 U.S.C. § 103. These factual inquiries, set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 U.S.P.Q. 459, 467 (1966), require the Examiner to:

(1) Determine the scope and content of the prior art;

(2) Ascertain the differences between the prior art and the claims in issue;

(3) Resolve the level of ordinary skill in the pertinent art; and

(4) Evaluate evidence of secondary considerations.

The obviousness or nonobviousness of the claimed invention is then evaluated in view of the results of these inquiries. *Graham*, 383 U.S. at 17-18, 148 U.S.P.Q. 467; *see also KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1730, 82 U.S.P.Q.2d 1385, 1388 (2007).

Indeed, to establish a *prima facie* case of obviousness, the Office must:

> make a determination whether the claimed invention "as a whole" would have been obvious at that time to that person. Knowledge of applicant's disclosure must be put aside in reaching this determination, yet kept in mind in order to

> determine the "differences," conduct the search and evaluate the "subject matter as a whole" of the invention. The tendency to resort to "hindsight" based upon applicant's disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art.

M.P.E.P. § 2142, 8th Ed., Rev. 6 (Sept. 2007). "The key to supporting any rejection under 35 U.S.C. § 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious." *Id.* It is important to note, moreover, that the prior art references relied upon in a rejection "must be considered in its entirety, i.e., as a whole, **including portions that would lead away from the claimed invention**," when such reasons are articulated by the Office. M.P.E.P. § 2141.03(VI), 8th Ed., Rev. 6 (Sept. 2007) (second emphasis added); *see also Graham*, 383 U.S. at 17, 148 U.S.P.Q. 467.

The Office has not established a *prima facie* case of obviousness, at least because Grosswig 1 and Grosswig-NPL, whether considered alone or in combination, do not teach or suggest each and every element of independent claims 23 and 48. As stated above, Grosswig 1 does not teach or suggest, *inter alia*, a "telecommunication fiber optic cable . . . comprising: an optical core comprising a number of telecommunication optical fibers; an outer jacket covering the optical core; and ***one or more gas leakage detector optical fibers being enclosed within the outer jacket*[,]**" as recited in claims 23 and 48. Rather, as shown in FIG. 1 of Grosswig 1, monomode fiber bundles 2 and the sensing multimode fiber bundle 3 are arranged within a metal strip 4, and metal strip 4 **is covered with a polyethylene coating 5** (equivalent to the claimed outer jacket). That is, Grosswig 1 teaches a cable wherein an outer jacket

(polyethylene coating 5) *covers both* communication optical fibers (i.e., monomode fibers 2) *and* detector optical fibers (i.e., multi-mode light wave conductor sensor cable 3). It does not, however, disclose a telecommunication fiber optic cable wherein "one or more gas leakage detector optical fibers" are "*enclosed within*" an outer jacket, as recited in claim 23.

Moreover, Grosswig-1 does not disclose a telecommunication fiber optic cable according to claim 48, wherein the outer jacket *covers* the claimed optical core, and "one or more leakage detector optical fibers . . . [are] *enclosed within the outer jacket and separated from the optical core*." Rather, from the figures of Grosswig 1, one of ordinary skill would understand Grosswig 1 as suggesting the inclusion of sensor fibers (e.g., multimode fiber bundle 3) *within* an optical core (i.e., the internal area surrounded by metal band 4) that is *covered* by polyethylene coating 5. In other words, Grosswig 1 *teaches away* from a telecommunication fiber optic cable comprising gas leakage detector optical fibers that are "enclosed within" an outer jacket that covers an optical core, and which are "separated" from the optical core.

Grosswig-NPL does not cure the deficiencies of Grosswig 1. Like Grosswig-1, Grosswig-NPL describes a technique for making temperature measurements using an optical fiber cable and Raman spectroscopy. *See* Grosswig NPL, page 9. Although Grosswig-NPL mentions that such a technique can be used to monitor a gas pipeline for leaks by monitoring the temperature of soil adjacent the pipeline, it does not provide any information regarding the structure of the fiber optical cable. Lastly, Gosswig-NPL, like US 6,536,463 to Beals (previously cited by the Office), does not teach detecting leaks in gas pipeline applications, i.e., detecting leaks within the gas pipeline, an understanding

the Office has adopted previously. Rather, it is designed to detect temperature differences outside the pipeline as evidence of a leak. See Grosswig NPL, page 11

For the foregoing reasons, Applicant submits that Grosswig-NPL cannot be considered to teach or suggest any of the cable structure elements recited in independent claims 23 and 48. Thus, the burden is on the Office to provide a tenable rationale explaining why one of ordinary skill would see any reason to modify the structure of Grosswig 1's cable, in an attempt to arrive at the claimed invention. The Office has failed to meet its burden in this case.

For at least the foregoing reasons, Applicant respectfully submits that the 35 U.S.C. § 103(a) rejection of claims 23 and 48 in view of Grosswig 1 and Grosswig-NPL is improper, and should be withdrawn.

D 35 U.S.C. § 103(a) rejection of claims 24-47 in view of Grosswig 1 and Grosswig-NPL

The Office also rejects dependent claims 24-47 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Grosswig 1 and Grosswig-NPL. *See* Office Action, pages 5-7. Claim 23 is not rendered obvious by the combination of Grosswig 1 and Grosswig-NPL for the reasons discussed above. Because claims 24-47 depend, either directly or indirectly, from claim 23, Applicant respectfully submits that the Office's rejection of these claims should be withdrawn for at least the same reasons.

E. 35 U.S.C. § 103(a) rejection of claim 48 in view of Jiang and Voet

The Office rejects claim 48 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Chinese Patent No. CN 1414283 ("Jiang") in view of European Patent No. EP 1 235 089 A1 ("Voet"). *See* Office Action, pages 4-5. Specifically, the Office alleges that "Jiang discloses a device to monitor the state of gas pipelines

comprising distribution type optical fiber sensors. Voet discloses an optical fiber bundle capable of measuring at least one parameter in which there are numerous optical fibers in the optical core surrounded by an outer jacket, some of which are in different spatial locations from the central optical core." *Id.* (citing Fig. 1, #'s 2, 8 and 5 of Voet.

As an initial matter, Applicant notes that Jiang is written in Chinese, and no translation of its text has been provided by the Office. Applicant has been unable to identify an English equivalent of Jiang or a readily available translation of the complete text of Jiang. However, Applicant has obtained an English abstract of Jiang, a copy of which is attached to this response for the Office's consideration. Applicant's arguments herein as to the disclosure of Jiang are based on this abstract alone. No representation is made as to the content of the complete text of Jiang. In the event the Office's position is based on the complete text of Jiang, Applicant requests the Office provide a complete English translation of the reference in a subsequent non-final Office Action, in accordance with M.P.E.P. §§ 706.02(II) and 706.07(a).

The relevant law governing the determination of obviousness is set forth above, and is not repeated herein for the sake of brevity.

Applicant respectfully disagrees with and traverses the Office's position, at least because Jiang and Voet, whether considered alone or in combination, fail to teach or suggest each and every element of claim 48. In particular, these references fail to teach or suggest a telecommunication fiber optic cable wherein the outer jacket *covers* the claimed optical core, and "one or more leakage detector optical fibers . . . [are] *enclosed within the outer jacket and separated from the optical core*" as recited in claim 48.

Jiang appears to be directed to an "intelligent on-line monitoring method of oil-gas pipeline leak based on distribution type optical fiber sensor." *See* Jiang, abstract. However, based on the English abstract, Jiang does not appear to disclose the structure of any telecommunication fiber optic cable, much less a structure within the scope of claim 48. Further, the Office has not alleged that Jiang teaches or suggest such a structure. Moreover Jiang, like Gosswig-NPL and US 6,536,463 to Beals, does not teach detecting leaks in gas pipeline applications, i.e., detecting leaks within the gas pipeline. Rather, it is designed to be "near the oil gas pipeline. . . parallel to the oil gas pipeline;" not within the pipeline. *See* Jiang, abstract. Thus, based on the English abstract of Jiang, Applicant maintains that Jiang does not teach or suggest any of the elements of independent claim 48.

Voet does not cure the deficiencies of Jiang. Voet discloses an optical cable for measuring at least one physical parameter. *See* Voet, abstract. These cables include glass fibers 2 which are disposed in gel 8, and enclosed in steel tube 1. *See id.* at ¶[0024] and Fig. 1. Steel tube 1 is surrounded by layers of synthetic material 3, 4, 5. *Id.* Armor wires 6 are embdedded in synthetic material 5. *Id.* Some of the glass fibers include bragg gratings and can be used to measure a physical parameter. *See id.* at ¶[0018].

For similar reasons as stated above in regard to Groswig 1, one of ordinary skill would understand that Voet does not disclose a telecommunication fiber optic cable wherein the outer jacket *covers* the claimed optical core, and "one or more leakage detector optical fibers . . . [are] *enclosed within the outer jacket and separated from the optical core*" as recited in claim 48. Rather, one of ordinary skill would understand that

the interior of Voet's steel tube 8 defines an optical core, in which *both* telecommunication and *measurement* optical fibers are disposed, and which is *covered* by an outer jacket material (i.e., synthetic materials 3, 4, 5). That is, one of ordinary skill would understand that Voet does not teach or suggest the "covered," "enclosed within" and "separated" elements of claim 48.

Accordingly, the burden is on the Office to provide a tenable rationale explaining why one of ordinary skill would see any reason to modify or combine Jiang and Voet in an attempt to arrive at the claimed invention. The Office has failed to meet its burden in this case. Applicant therefore requests that the Office withdraw its rejection of claim 48 in view of Jiang and Voet.

III. Conclusion

In view of the foregoing remarks, Applicant respectfully requests reconsideration of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account no. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: July 29, 2009

By: _____
Nikolas J. Uhlir
Reg. No. 62,201

Attachments: Machine translation of European Patent No. EP 0 978 715

English Abstract of CN1414283(A) ("Jiang")